

CLAIMS

1. A method of forming shaped structures on a device plate (2, 20) comprising applying a photosensitive layer (6, 19) to said plate, and forming
5 the shaped structures on the photosensitive layer in a photolithographic process using a grey-tone photo mask (7, 21) which comprises at least one region of semi-transparent material (8, 16, 18) said material having a degree of transparency which is dependent on the optical band gap of the material.
- 10 2. A method according to claim 1 wherein the material regions used in the grey-tone photo mask are hydrogenated silicon-rich silicon nitride $\text{SiN}_x\text{:H}$ with x less than 1.
- 15 3. A method according to claim 1 or 2 wherein, prior to forming of the shaped structures in the liquid crystal display cells, the method further comprises the steps of forming the photo mask (7, 21) including:
- depositing a layer of said semi-transparent material to form said region of semi-transparent material (16) on a UV-transparent substrate (15);
 - patterning said semi-transparent material;
 - 20 • depositing a layer of UV-opaque material (17) onto the substrate; and
 - patterning said layer of UV-opaque material.
4. A method according to claim 3, including:
- depositing a layer of a second semi-transparent material (18) having a
25 different degree of transparency to the first material, where the degree of transparency is dependent on the optical band gap of the material, to form a second region of semi-transparent material (18) on said UV-transparent substrate; and
 - patterning said second semi-transparent material.
- 30 5. A method according to claim 4 including patterning once again said layer of UV-opaque material (17).

6. A method according to claim 3, 4 or 5, wherein the UV-opaque material (17) is Cr.

5 7. A method according to any preceding claim wherein said photo mask is used in said photolithographic process so as to produce an irregular surface topography for a diffusely reflective pixel electrode of a liquid crystal display.

10 8. A method according to claim 7 wherein said surface topography for said diffusely reflective pixel electrode of the liquid crystal display has multiple levels of thickness.

15 9. A method according to any preceding claim including forming an a AMLCD including the device plate.

10. A liquid crystal display device fabricated by a method as claimed in any preceding claim.

20 11. A mask configured for use in a method as claimed in claim 1.